

Abstract

A probe card for testing semiconductor wafers, and a method and system for testing wafers using the probe card are provided. The probe card is configured for use with a conventional testing apparatus, such as a wafer probe handler, in electrical communication with test circuitry. The probe card includes an interconnect substrate having contact members for establishing electrical communication with contact locations on the wafer. The probe card also includes a membrane for physically and electrically connecting the interconnect substrate to the testing apparatus, and a compressible member for cushioning the pressure exerted on the interconnect substrate by the testing apparatus. The interconnect substrate can be formed of silicon with raised contact members having penetrating projections. Alternately the contact members can be formed as indentations for testing bumped wafers. The membrane can be similar to multi layered TAB tape including metal foil conductors attached to a flexible, electrically-insulating, elastomeric tape. The probe card can be configured to contact all of the dice on the wafer at the same time, so that test signals can be electronically applied to selected dice as required.